



GDOT Publications

Policies & Procedures

Policy: 8075-1- Database Design and Modeling Standard

Section: Database Standards

Office/Department: Office of IT Application Support & Development

Reports To: Division of Information Technology

Contact: 404-631-1000

PURPOSE

The purpose of this document is to establish department wide standards for data modeling practices; promote their effective use for application development projects and facilitate common, interoperable representations and descriptions of data.

SCOPE

- This policy applies to all Database Support, Data Warehouse, and Application Development personnel (including contractors, vendors and other third parties) actively engaged in database design, development, or modification; and to any outside entities engaged in developing IT applications for GDOT.
- Exceptions to the scope of this standard must be approved by the Administrator for IT Applications.
- The scope of this document does not extend to COTS products whose implementation within GDOT does not require significant modification to the base package

RESPONSIBILITY

1. The Administrator of the Office of IT Applications is responsible for compliance with the standard, updates to the standard, and enforcing the standard.
2. The Database and Data Warehouse Team Leaders are responsible for compliance with the standard and for reporting concerns to the IT Application Administrator.

DEFINITIONS

COTS "Commercial off-the-shelf" Product - Any third-party software product that intended to be used "as-is".

STANDARDS

The main objectives of this standard are to:

- Promote and support the use of data modeling for system development.
- Increase data sharing opportunities across GDOT, reduce data redundancy, and improve application interoperability.
- Increase opportunities for consolidation of like data and business processes.
- Establish data modeling standards that best meet current and future GDOT requirements, considering traditional, legacy, and web-based application development efforts.
- Leverage and reuse existing data sub-models where appropriate.

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Date Last Reviewed: [Date Last Reviewed]

- Build a foundation to help with the integration of information silos.
1. In accordance with the business and implementation requirements, GDOT IT may complete, and subsequently update the Conceptual Data Model throughout the development cycle of the IT project. A conceptual data model is typically used to identify and document business (domain) concepts with project stakeholders. It is one layer more abstract than a logical data model that describes a particular computer-based system. A conceptual data model contains subject areas, classes, and relationships, and generally models a project-specific domain. It is also the most viable level at which to integrate different data models because object representational differences are excluded.
 2. GDOT IT shall complete, and subsequently update a Logical Data Model throughout the development cycle of the IT project. This Data Model illustrating the logical structure of data objects shall be represented via an Entity Relationship Diagram (ERD). A logical data model contains subject areas, normalized classes, atomic attributes, relationships, and candidate/primary keys, and usually serves as a model for an enterprise-specific design of a project-specific domain.
 3. GDOT IT shall complete, and subsequently update a Physical Data Model throughout the development cycle of the IT project. This Data Model illustrating the physical structure of data objects shall be represented via an Entity Relationship Diagram (ERD). A physical data model contains tables, attributes, relationships, and candidate/primary keys. This model usually serves as an enterprise-specific implementation of a project-specific domain.
 4. Using the EDW to promote data consolidation:
 - The EDW is generally not to be used when data is to be exchanged between two source systems for purposes of completing/updating a data set for business processes.
 - The EDW will be used as the primary destination for data consumption for GDOT applications; with the exception of items discussed in section
 5. Any and all documentation generated during the design and modeling process shall be kept in Clear Case, and shall be subject to the terms and conditions governing GDOT's implementation and established policies for the Clear Case product.
 6. The current preferred, enterprise ETL tool to be used by GDOT IT is Business Object's Data Integrator. Additional tools or methods can be employed with the approval of the Administrator for IT Applications (e.g. SQL Server Integration Services).
 7. For all COTS products, GDOT IT is responsible for preparing a reverse engineered ERD as needed to facilitate additional modifications or development.
 8. The current enterprise modeling tool to be used by GDOT IT shall be Embarcadero's ER/Studio.
 - Data modeling tools used in conjunction with relational database technologies shall be Extensible Markup Language (XML) compliant.
 - Data modeling tools used in conjunction with object-oriented database technologies shall be Unified Modeling Language (UML™) and Extensible Markup Language (XML) compliant.
 9. The Database Design and Modeling process and procedures shall be subject to any limitations, specifications or restrictions that are adopted by GDOT as part of additional standards documentation.

References:

None.

History:

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